Patent claims

1. A method for controlling a virtual reality (VR) graphics system using interactions, the VR graphics system having a projection device for visualizing virtual three-dimensional scenes and the interactions with the VR graphics system taking place using at least one interaction unit, which is used to detect the respective position and/or orientation of the interaction unit on a physical spatial trajectory and to generate corresponding position data and to transmit these position data to a position detection device of the VR graphics system, characterized in that an initial spatial point on the physical spatial trajectory of the interaction unit is determined, and in that at least one subsequent interaction is evaluated relative to the initial spatial point determined.

2. The method as claimed in claim 1, characterized in that reference coordinates are determined using the initial spatial point, the at least one subsequent interaction being evaluated relative to these reference coordinates.

3. The method as claimed in claim 1 or 2, characterized in that at least one threshold value or a first threshold value area is formed using the initial spatial point and/or the reference coordinates, at least one action or function of the VR graphics system being triggered when said threshold value or threshold value area is exceeded by the physical spatial trajectory.

4. The method as claimed in claim 3, characterized in that the first threshold value area defines at

least two different threshold values which are used for weighting when the at least one action or function of the VR graphics system is triggered.

5. The method as claimed in claim 3 or 4, characterized in that the first threshold value area is formed by a symmetrical three-dimensional body, in particular a sphere, an ellipsoid, a cube, a cuboid or the like.

6. The method as claimed in one of claims 1 to 5, characterized in that the initial spatial point and/or the reference coordinates is/are used to form at least one second threshold value area whose value essentially greater than the value of the first threshold value area, shifting of the zero point of the reference coordinates in the direction of the spatial trajectory being triggered when said second threshold value area is exceeded by the physical spatial trajectory.

7. The method as claimed in one of the preceding claims, characterized in that the initial spatial point is determined using a first interaction.

8. The method as claimed in claim 7, characterized in that the first interaction takes place using the interaction unit, in particular using a control element which is arranged on the interaction unit, or using a user's acoustic, linguistic or gesticulatory interaction.

9. The method as claimed in one of the preceding claims for use in a VR graphics system having at least one three-dimensional virtual menu system or function selection system, characterized in that the at least one subsequent interaction is used to

control the menu system or the function selection
system.

10. The method as claimed in claim 9, characterized in
    that, on account of the first interaction, the
    menu system or the function selection system is
    inserted into the virtual scene, with regard to
    the projection device, on the basis of the viewing
    direction and/or the head position of a user who
    is holding the interaction unit, in that the
    viewing direction and/or the head position is/are
    detected continuously or occasionally, and in that
    the position on the projection device, at which
    the menu system or the function selection system
    is/are inserted, is determined on the basis of the
    viewing direction detected and/or the head
    position detected.

11. The method as claimed in claim 9 or 10,
    characterized in that an action or function which
    is to be effected by means of a rotational
    movement of the interaction unit is triggered only
    when at least one second interaction is carried
    out, in particular using the control element.

12. A three-dimensional user interface for controlling
    a virtual reality (VR) graphics system using
    interactions, the VR graphics system having a
    projection device for visualizing virtual three-
    dimensional scenes and the interactions with the
    VR graphics system taking place using at least one
    interaction unit, which is used to detect the
    respective position and/or orientation of the
    interaction unit on a physical spatial trajectory
    and to generate corresponding position data and to
    transmit these position data to a position
    detection device of the VR graphics system,
    characterized by means for generating an initial

spatial point on the physical spatial trajectory of the interaction unit and for evaluating at least one subsequent interaction relative to the initial spatial point determined.

13. The user interface as claimed in claim 12, characterized by means for calculating virtual reference coordinates on the basis of the initial spatial point and for evaluating the at least one subsequent interaction relative to these reference coordinates.

14. The user interface as claimed in claim 13, characterized by means for calculating at least one threshold value or a first threshold value area on the basis of the reference coordinates and means for triggering an action or function of the VR graphics system when the threshold value or the first threshold value area is exceeded by the physical spatial trajectory.

15. The user interface as claimed in one of claims 12 to 14, characterized by means for calculating at least one second threshold value area on the basis of the reference coordinates, the value of said second threshold value area essentially greater than the value of the first threshold value area, and means for shifting the zero point of the reference coordinates in the direction of the spatial trajectory when the second threshold value area is exceeded by the physical spatial trajectory.

16. A virtual reality (VR) graphics system which operates according to the method as claimed in one of claims 1 to 11 and/or which has a user interface as claimed in one of claims 12 to 15.